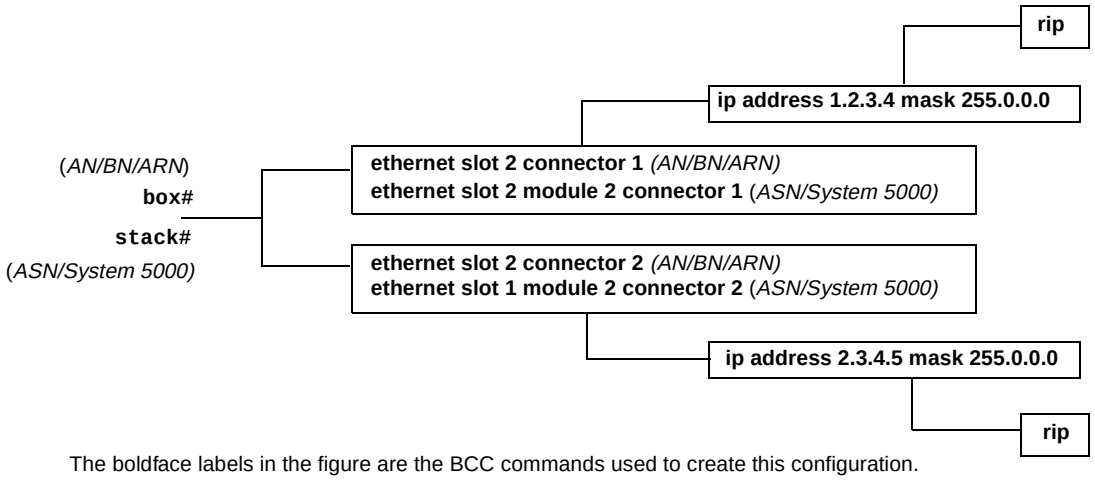
BCC Quick Reference

Getting Started

The Bay Command Console (BCC™) uses a hierarchical tree configuration model similar to a DOS hierarchy of directories and files. The tree contains:

- *Objects:* Physical or logical entities you can configure. An **ethernet** interface or the protocol **ip** is an object. Each object that you configure has a unique BCC identifier, for example, ethernet/2/1 or ip/1.2.3.4/255.0.0.0.
- *Parameters:* Describe characteristics and behavior of an object; for example, **slot**, **connector**, and **bofl** are parameters of **ethernet**. Each parameter has a value: **slot 4**, **connector 1**, and **bofl off** are parameter-value pairs.

Sample Configuration



The boldface labels in the figure are the BCC commands used to create this configuration.

Proceed as follows to start using the BCC:

- To enter BCC configuration mode, type **config** at the `bcc>` prompt.
- To see any commands that you can enter next at the current prompt, enter the question mark (**?**) command.
- To see usage (syntax) or options for a specific command, add the question mark (**?**) to that command, for example: **ethernet ?** or **show ?** or **show ip routes ?**
- To configure any object available at your current location in the tree, enter the object name (such as **ethernet**).

  Note: Carefully follow the syntax and details of any BCC usage Help prompting you for more complete information. Note especially where you can insert slash (***/***) characters.
- To see parameter values for the object you just configured, enter **info**.
- To see all values for any parameter configurable from your current context, enter *<parameter>* **?**, for example, in an **ethernet** context, enter **bofl ?**
- To see statistical information, enter **show** commands in *any* BCC mode. (First enter **show ?**)
- To see the entire device configuration, enter **show config -all**
- To see an explanation of all options for **show config**, enter **show config ?** or **help show config**
- To list objects already configured at the next (branch) level of the device configuration tree, enter **lso**
- To move one level back toward the root level of the device configuration, enter **back**
- To move back to root (`box#` or `stack#`) level from any location in the device configuration tree, enter **box** (AN/ANH, ARN, BN) or **stack** (ASN or System 5000).
- To see your current location in the device configuration, enter **pwc** (print working context).
- To exit configuration mode, type **exit**. To exit the BCC and return to the Technician Interface prompt, type **exit** again. To log out of the router, type **logout**.

Configuration Tips

- You immediately modify device behavior when you enter BCC configuration commands.
- Configure physical interfaces first, add protocols to each interface, and then configure global (device-wide) protocols. Some protocols have global as well as interface-level objects.
- A configured object has a BCC identifier that uses slash characters to join the name of the object to the values of its required parameters, for example, **ethernet/2/1** or **ip/1.2.3.4/255.0.0.0**. The identifier of the object you just configured or accessed appears in the BCC configuration prompt.
- When you add IP to an interface, the BCC accepts either a decimal mask value (such as 24, indicating the number of bits reserved for the network portion of the IP address) or a value in dotted-decimal notation, such as 255.255.255.0. Regardless of mask input format, the BCC always displays a configured mask in dotted-decimal notation.
- To see every object that you can configure from your current location, enter **help tree**. The output is in hierarchical or tree format. (The closer you are to root level, the greater the amount of output.) To see the entire *configurable* tree for a device, enter **help tree -all**
- To access any object already configured, type the path to that object. For example, to access RIP on an Ethernet interface, type **eth 2/1;ip 1.2.3.4/255.0.0.0;rip** (the BCC interprets each semicolon [;] as if you had pressed the Return key to start a new command line).
- If you exit and then reenter the BCC without rebooting the router, configuration changes that you made during the last BCC session are still in effect.

Common BCC Operations

The BCC indicates when configuration parameters have values that are required (you must supply a value). Other parameters have derived or default values supplied by the system.

Task	BCC Command Syntax	Examples
Configure a physical interface.		
• For AN, ARN, BN:	At the `box#` prompt, use either of the following formats: *<interface_type>* **slot** *<slot>* **connector** *<connector>* *<interface_type> <slot>/<connector>*	**ethernet slot 3 connector 1** **eth 3/1**
• For ASN and System 5000:	At the `stack#` prompt, use either of the following formats: *<interface_type>* **slot** *<slot>* **module** *<module>* **connector** *<connector>* *<interface_type> <slot>/<module>/<connector>*	**ethernet slot 1 module 1 connector 2** **eth 1/1/2**
Configure a global or interface-level protocol:	*<protocol> <required_parameter> <value>* ...	**ip address 1.2.3.4 mask 255.0.0.0** **ip 1.2.3.4/255.0.0.0** **ip address 1.2.3.4 mask 24** **ip 1.2.3.4/24**
Modify parameter values.	*<parameter> <new_value>* ...	**cache-size 64** **ca 64**
Disable, enable, or delete the current object (the object named in the current prompt).	**disable** **enable** **delete**	`ip/1.2.3.4/255.0.0.0#` **disable** `ip/1.2.3.4/255.0.0.0#` **enable** `ip/1.2.3.4/255.0.0.0#` **delete**
Disable, enable, or delete this child of the current object (an object configured below the current object).	**disable** [*<BCC_instance_id>*] **enable** [*<BCC_instance_id>*] **delete** [*<BCC_instance_id>*]	`fddi/1/1#` **disable ip/1.2.3.4/255.0.0.0** `fddi/1/1#` **enable ip/1.2.3.4/255.0.0.0** `fddi/1/1#` **delete ip/1.2.3.4/255.0.0.0**

Command Shortcuts

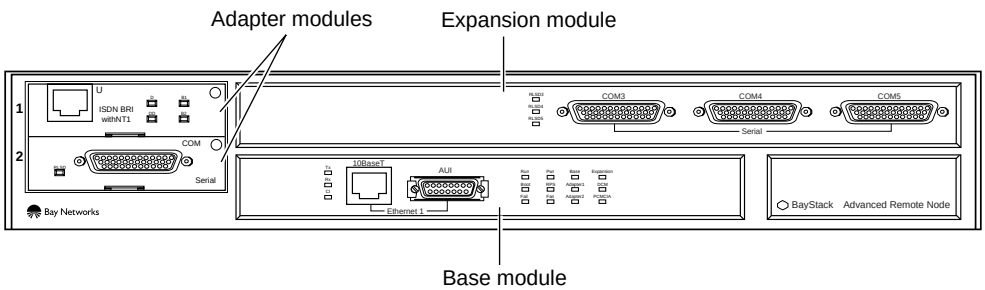
- To recall any command from the history list, press the up arrow (or Control-p) or down arrow (or Control-n).
- Enter the first few letters of any command and press Return. The BCC automatically completes any command for which it finds a unique match in the current context. Otherwise, the BCC displays choices or an error message based on your partial entry.

Help Tips

- To see an overview of the Help system, enter **help** or **help help**
- To see a list of all system (nonconfiguration) commands, enter **help commands** or **help commands -more**
- To see Help for a specific command, enter **help** *<command>*, for example, **help compact** or **help ip**
- To see text definitions for the parameters of any object configurable at your current location in the tree, enter **help** *<parameter>* (for example, **help bofl**) or enter **help** *<object_name>* (for example, **help ip**)
- When the BCC displays a list of choices for **help** on a configuration object, copy and paste the command line that best describes the path from root to that object in the tree, for example, **help box ip** (global IP) or for interface IP, **help box ethernet ip** or **help box serial ppp ip**

Interface Conventions

The following table describes the conventions for slot, module, and connector numbering on each router platform.

Platform	Syntax
AN/ANH	*<interface> <slot> <connector>* • *<interface>* = interface type: ethernet, token-ring, serial, etc. • *<slot>* = 1 (The AN/ANH is a single-slot device.) • *<connector>* numbering starts with connector 1. ***Example:*** **ethernet slot 1 connector 3** This is an Ethernet interface configured on AN/ANH connector 3, which exists on an Ethernet adapter module. (Connectors 1 and 2 are on the base module.)
ARN	*<interface> <slot> <connector>* • *<interface>* = interface type: ethernet, token-ring, serial, etc. • *<slot>* = 1 (The ARN is a single-slot device.) • *<connector>* numbering depends on the port type (LAN or WAN). LAN connector numbering starts at 1 on the base module, which contains only LAN ports, and continues in ascending order, starting with the first LAN port on an ARN expansion module. (The ARN expansion module plugs into the ARN base module.) WAN connector numbering starts with connector 1 on WAN adapter module 1, continues with connector 2 on WAN adapter module 2, and ascends sequentially with WAN connectors 3 through *n* on the ARN expansion module.  ***Example:*** **ethernet slot 1 connector 2** This interface is configured on LAN connector 2, which exists physically on an Ethernet expansion module. (Ethernet connector 1 is on the base module.) ***Example:*** **serial slot 1 connector 3** This is a serial (WAN) interface configured on WAN connector 3 on the ARN expansion module.

Platform	Syntax
ASN	*<interface> <slot> <module> <connector>* • *<interface>* = interface type: ethernet, token-ring, serial, etc. • *<slot>* = 1, 2, 3, or 4, depending on the setting of the module ID switch on each ASN. • *<module>* numbering corresponds to net module numbering (1 through 4) on each ASN. • *<connector>* numbering starts at 1 on each net module (per media type). ***Example:*** **ethernet slot 2 module 3 connector 2** This is an Ethernet interface on connector 2 of net module 3, in ASN 2 of a stacked ASN configuration.
BN	*<interface> <slot> <connector>* • *<interface>* = interface type: ethernet, token-ring, serial, etc. • *<slot>* = 2 through 5 (BLN) or 1 through 14 (BCN). • *<connector>* numbering starts with connector 1 on each slot (per media type). ***Example:*** **ethernet slot 8 connector 3** This is an Ethernet interface configured on connector 3 of slot 8 of a BCN router.
System 5000	*<interface> <slot> <module> <connector>* • *<interface>* = interface type: ethernet, token-ring, serial, atm, etc. • *<slot>* = 2 through 13 in a System 5000 chassis. • *<module>* numbering corresponds to net module 1 or 2, which plugs into a System 5000 base module. A System 5000 base module is always module 3. • *<connector>* numbering starts at 1 on each net module. The base module always contains a connector 1, which plugs into a System 5000 backplane (for example, Ethernet, token ring, or ATM backplane). ***Example:*** **ethernet slot 2 module 2 connector 1** This is an Ethernet interface on connector 1 of the Ethernet net module (module 2) in slot 2. **atm slot 2 module 3 connector 1** This is an ATM interface on connector 1 of slot 2, a Model 5782 Virtual Network Router (VNR) base module (module 3). Note that the VNR does not accommodate any net modules.

Sample Session

The BCC syntax required to enter the sample configuration shown in the figure on page 1 would be as follows on a BN router that has an Ethernet module in slot 2:

Configuration Command	Comment
`box#` **ethernet slot 2 connector 1**	Configures ethernet 2/1, using a fully specified interface location.
`ethernet/2/1#` **ip 1.2.3.4/8**	Configures ip/1.2.3.4, using a decimal mask value.
`ip/1.2.3.4/255.0.0.0#` **rip**	Configures rip/1.2.3.4, with no parameter values required.
`rip/1.2.3.4#` **back**	Navigates back one level closer to box or root level.
`ip/1.2.3.4/255.0.0.0#` **back**	(Same as above.)
`ethernet/2/1#` **back**	(Same as above.)
`box#` **eth 2/2**	Configures ethernet 2/2, using abbreviated format. No slash between the object name and the first required parameter value. Slashes between required values only.
`ethernet/2/2#` **ip address 2.3.4.5 mask 255.0.0.0**	Configures ip/2.3.4.5, using dotted-decimal notation for the mask value.
`ip/2.3.4.5/255.0.0.0#` **rip**	Configures RIP on ip/2.3.4.5.
`rip/2.3.4.5#` **box**	Jumps to root level from any location in the configuration tree.

Notice how each BCC prompt contains the BCC identifier of the object just configured. Slash (/) characters join the object name and any required parameter values in the identifier of a configured object.